Local Wood Use at Middlebury College

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Middlebury College Environmental Studies Senior Seminar Fall 2006

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TABLE OF CONTENTS

1. Background	1
2. Problem Introduction	3
3. History of the College's Wood Use	6
4. Methodology	8
5. Results	19
6. Recommendations and Opportunities	17
7. Acknowledgements	20
8. Appendix (Sample Questions)	21
9. References	22

BACKGROUND

In the Environmental Studies Senior Seminar Fall 2006, we focused on healthy local communities—what they are, why we need them, where and to what extent they might exist, and how to build them. This topic has a certain urgency as so many of our communities are struggling economically, environmentally, socially, and politically. While the Middlebury community, comprising both the town and College, is perhaps much better off than many others, it faces the same challenges all places struggle with today. In an increasingly globalized world, it is often difficult to assert why it is that place matters—why it is that a geographic community, with its unique economic, political, and social traditions, is perhaps best served *not* by homogenizing, but by retaining or rediscovering its own traditions.

At the root of such traditions is often a theme of sustainability. Traditions imply long-term endurance and inherited wisdom. While the traditions of communities are at the same time social, economic, and environmental, enduring healthy communities have a common root based on place. Michael Shuman explains in his book *Going Local*, "Whenever citizens buy a good that is made locally they expand jobs, enlarge the tax base, and strengthen the economy. Every dollar spent on local goods and services provides income to local owners, local workers, and local suppliers" (Shuman, 132). Similarly, in the book *Cradle to Cradle*, the authors have a chapter entitled "All Sustainability is Local." If this is true, then the economic, social, and environmental roots of sustainable practices must also be local. McDonough and Braungart go on to write, "The idea of local sustainability is not limited to materials, but it begins with them" (McDonough and Braungart, 125).

Middlebury College, as an institution dedicated to encouraging environmental sustainability both in the classroom and in its own practices, is embracing this concept through the utilization of local goods and services. As one example of its sustainable practices, the College began an initiative to use local wood in its building projects. First conceived during the planning of McCardell Bicentennial Hall in the mid 1990s, local wood has now been used in Bicentennial Hall, the LaForce Dormitory and Ross Dining Hall, the Recycling Center, the Main Library, and the Atwater Dining Hall and Dormitories. The motivating factors behind this local wood initiative have been not only environmental, but also economic and social. Sound environmental practices open the door for sustainable economic growth and enduring local communities.

Socially, this initiative serves the important purpose of establishing a connection between the College as a consumer and the community as a producer. In connecting the Middlebury community with the land and people surrounding it, the College is able to foster a sense of place and attach a value to community. Its use of local wood also builds relationships and fosters the development of new social networks by linking community members who work together to produce a building or a piece of furniture.

Economically, purchasing from local foresters and local wood-product businesses stimulates the local economy both in the harvesting and value-adding stages of lumber production. Using local wood in prominent buildings such as the Library and Bicentennial Hall also provides an opportunity for this wood to be showcased to large audiences, which in turn may help to increase demand for these species of wood and create more jobs for Vermonters in wood related industries.

Environmentally, purchasing wood from local timber harvesters enables the College to ensure that the forests are being managed sustainably and in a manner that causes the least environmental degradation possible. Purchasing local wood also allows the College to reduce fossil fuel emissions associated with trucking and shipping wood long distances. Perhaps most importantly, however, the initiative allows the College to enhance environmental awareness and responsibility through leading by example.

PROBLEM INTRODUCTION

Middlebury College is an institution that fosters intellectual growth through rigorous academic programs that cultivate independent thought and strong leadership skills within a diverse community (College Mission Statement). However, beyond its mission to promote academic excellence, Middlebury has made a commitment to promote environmental initiatives on its campus thereby "reinforcing our commitment to integrating environmental stewardship into both our curriculum and our practices on campus" (College Mission Statement). Though Middlebury College is foremost an academic institution, its mission statement reveals that the College is committed to environmental awareness and leading by example, thereby involving the entire community in their active approach to environmental consciousness. Furthermore, in Chapter Five of the College's Strategic Plan it claims "Middlebury has established itself as a leader in campus environmental initiatives, with an accompanying educational focus on environmental issues around the globe" (College Strategic Plan). In order for the College to uphold its commitment to environmental stewardship as well as its reputation as a premier leader in environmental awareness, it is necessary to continually assess and improve the ways in which Middlebury affects its surrounding environment.

This community project was designed with the help of Jeff Parsons, a partner at Beeken Parsons Furniture. The goal was to critically assess one important aspect of the College's relationship to the environment, namely its use of local wood, specifically wood from College-owned forestlands, in campus construction projects. The project is of particular significance to Jeff because he is one of a handful of furniture makers that use local Vermont wood. Thus, as a local, environmentally aware businessman interested in increasing the market for local products, Jeff was motivated to direct this project as a means of revitalizing the College's local wood initiative that has been losing momentum for the past few years.

According to Jeff, the focus and excitement of using local wood in the Bicentennial Hall Project was extremely stimulating not only for the College community, but also for the local businesses involved. It provided a large outlet for local wood, which in the case of many other construction projects is avoided because of its lighter hue and inability to hold darker stains effectively. In addition, local wood often contains "character flaws" or inconsistencies in its grain that are considered undesirable by many customers looking for uniformity in their wood products. Consequently, the College's decision to use local wood in construction projects like Bicentennial Hall serves many purposes by contributing to the local economy, supporting environmental initiatives about local purchasing, and providing an example of sustainability to other institutions.

Although the College is heading in the right direction by dedicating energy and thought to implementing environmental initiatives such as local wood use, as outlined in their mission statement and in initiatives for green building on campus (Middlebury College Guiding Principles), there remains a myriad of improvements that could be made

to this program to make local wood a more efficient, effective, and widespread practice on campus. By gathering information and perspectives of the various parties involved in the creation of campus buildings, we aim to highlight intricacies of these improvements with the goal of developing a better model for the College community and for others.

In this project we examined the success of the College's implementation of the local wood initiative in past building projects through meetings with a variety of different individuals involved in construction projects on campus. We spoke with the College Forester, two project planners from Facilities Services, an out-of-state architect who helped to design the new Library, and a professor who served on the planning committees for two campus construction projects. Each of these individuals contributed a slightly different view on the progress and goals of the local wood initiative on campus. Their insights and concerns enabled us to create an analysis of local wood use, from its origin in the forests to its final form such as flooring or furniture. Furthermore, these discussions elucidated key problems and benefits inherent in the College's current building methods. Using this knowledge we have compiled a list of recommendations for the College to consider in order to increase the demand for, and success of, using local wood in future construction projects. These recommendations in turn will help to create a more userfriendly local wood-use model that will help to maximize local wood use and ensure that the ease of using local wood mirrors the final reward of having sustainable materials in College buildings.

HISTORY OF THE COLLEGE'S WOOD USE

The College's first pointed effort at using local wood came with the building of McCardell Bicentennial Hall in the mid 1990s when trustees identified green design as a priority for the project. The project goals were defined in a statement for the Campus Consortium for Environmental Excellence as "[Tying] together a conviction to achieve environmental excellence and a commitment to bettering the community, [ensuring] wise financial investing in VT sustainably oriented businesses, [promoting] on-going active learning and sharing, and [creating] an openness to pioneering new approaches" (EPA Facilities Report, 1). The project used more than 200,000 board feet (bf) of green certified Vermont wood, harvested both from College land and green certified family-owned forests connected with Vermont Family Forests (VFF). The building showcases seven different species of northern Vermont hardwoods in cuts that deliberately emphasize the natural character marks and color variations of the wood.

Despite this achievement, however, there were many aspects of the process that left room for improvement on the environmental, social, and economic fronts. For example, although all of the wood used was green certified and much of it was from Vermont, a significant portion also came from outside of the state. In obtaining wood for the project, Forest Stewardship Council (FSC)² certification was given a priority over local origin, which worked against the goals of stimulating the local economy and fostering a connection between place and community. Additionally, much of the value-adding for the wood was done by companies outside of Vermont, which not only negated

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¹ VFF is a non-profit family forest conservation organization that promotes the conservation of forest community health. See www.familyforests.org for more information.

² FSC is an international not-for-profit membership-based organization that brings people together to find solutions to the problems created by bad forestry practices and to reward good forest management. See www.fsc.org for more information.

economic and social goals but also hampered environmental aims such as cutting down on carbon emissions from transportation.

The next projects that the College tackled were the LaForce building and Ross

Dining Hall in Ross Commons and the Recycling Center. Learning from its experiences
in Bicentennial Hall, the College again cited green design as an aim but focused more on
using local and College wood than on FSC certification. Although College forestland is
not FSC certified, the College Forester maintains that the wood from its forests is
harvested sustainably and it was therefore considered green by trustees and others
involved in the planning and construction processes. In the Ross Commons buildings, the
College attempted to promote student awareness of local wood use through handing out
information pamphlets and creating a photo-illustrated display detailing the goals and
construction processes of the building on one of its halls.

Following completion of these projects, the College began simultaneous work on the new Library and the new Atwater Commons Dining Hall and dorms. Again, the focus of these projects was on using local rather than FSC certified wood, although using sustainably harvested "green" wood was still the overarching goal. During these projects, the timing of harvesting, value-adding, and wood delivery became a bigger issue because the two jobs were sharing wood and because Middlebury has no storage facility for the wood. Many of those involved in the operation expressed frustration over this point. On a more positive note, however, these projects managed to involve more local value-adders and required less long distance shipping and purchasing than Bicentennial Hall, the Ross Commons Buildings, or the Recycling Center.

At the time of this report, the College is involved in yet another construction project in renovating the Hillcrest building, which is to be the new Hillcrest Environmental Center. Based on our conversations with those involved, it appears that the project is encountering difficulties with timing its requests for wood and finding storage for this wood, just as the new Library and the Atwater Dining Hall and dorm projects did. There is concern over a loss of momentum in green design, supporting the local economy, and other community goals. However there still remains excitement and optimism about the future of College local wood use.

METHODOLOGY

During this project, information on the College's use of local wood was gathered from several different sources who were asked to provide as much information as possible about their experience with local wood use on campus. We attempted to contact people on many different sides of the spectrum that are, or had been involved, in one or more of the College's building projects. The individuals we spoke with represent the variety of roles involved in building projects as well as the range of experiences and viewpoints that must be considered. These people included:

Steve Weber, the Middlebury College Forester, whose job includes the
maintenance of the College's woodlands and farmlands in order to
"provide aesthetic, economic, environmental, recreational and educational
enhancement" (College Website, Administration/Business Services
Section).

- Joe Ruocco, who is an Associate Partner at Gwathmey Siegel and Associates Architects, a New York City-based firm that was hired by the College to design the new Library that was completed in June of 2004.
- Mark Gleason, a member of Facilities Services at the College, who
 worked as project manager for the Atwater Dining Hall project, among
 other projects, including the Hillcrest Environmental Center.
- Tom McGinn, a member of the College's Facilities Services, who served as the project manager for the new Library.
- Glenn Andres, a History of Art and Architecture professor at Middlebury
 College who has served as chair of the planning committees for the new
 Library and for the Axinn Center at Starr Library. In addition Professor
 Andres was party to deliberations for the Ross and Atwater Commons
 buildings and the Hillcrest Environmental Center.

The information we gathered from these discussions provided us with a unique comprehension of the steps involved in using wood in campus construction projects as well as an overarching perspective of how different units work together to create a final product. Consequently this information has enabled us to highlight merits and inefficiencies in the system that need to be acknowledged to create a more workable and motivating model for using local wood.

RESULTS

Through this information gathering process we have summarized what we felt were the main benefits and challenges associated with using local wood in building projects on campus. According to those that we interviewed, the primary benefits

associated with the use of local wood fell into five main categories: the recognition of local wood aesthetics, lack of significant pricing differences, the intrinsic value of local wood, the community support that the use of local wood provides, and how its use fits into a model of environmental sustainability. Conversely, there are a number of important challenges the College faces in its continued push to implement the use of local wood in campus construction projects including: the lack of a clearly defined wood use program, problems associated with certification issues, timing, design compromise, lack of a storage facility, and limits to the College's role as an academic institution. Although these challenges exist, they are an excellent jumping off point to create a systematic approach to the use of local wood use in the future.

Benefits Associated with Using Local Wood:

Embracing Local Aesthetics:

One of the many benefits of working with local Vermont wood is that it is easy to incorporate into designs if individuals are open to embracing the unique aesthetic that it offers. According to Joe Ruocco, the architect who worked on the design for the new Library, "The natural color of the available species, maple and beech, became a major component of the visible palette of building materials that creates the [Library's] physical ambiance." Joe explained that in the case of the new Library, the environmental constraints of using local wood did not limit the creativity of the design, but more accurately, the 'environmental framework' mandated for the project, became one of the most valuable constraints that melded many variables into a unified architectural solution." It would appear that departing from narrow conceptions of what constitutes

aesthetic beauty in wood designs can create desirable outcomes, especially when the final product is also sustainable.

Equivalent Pricing:

None of the individuals we spoke with mentioned any major cost differences between using local and non-local wood. Although neither Tom McGinn nor Mark Gleason were able to give us any exact cost figures, both clearly stated that if there was any cost difference between using local vs. non-local wood, it was extremely negligible and was not an important consideration for the College when deciding what type of wood to use. The insignificance of cost in the College's wood use decisions was clear from these individuals' dismissal of the cost differences as very slight if noticeable at all.

Furthermore, if one considers the hidden costs not included in non-local and non-sustainably harvested wood, a cost/benefit analysis would more strongly favor local wood. For example, using local wood should cut down on transportation and delivery costs and support community businesses that help in the processing.

Intrinsic Value:

Another advantage of using local wood is the inherent value that it holds by simply being a native entity that can be used in projects to reflect the beauty and significance of Vermont forests. Joe Ruocco explained that "the ability to harvest and process a resource owned and controlled by the user is an asset somewhat unique to Middlebury" and that "using local resources provided a significant value in the design and construction of the Library." Mark Gleason agrees that there is inherent value in using wood that is sourced from the College's land holdings or other local areas. He feels

that it gives many people a sense of pride and accomplishment to know that the final product reflects an effort to use Vermont forests in a sustainable, effective manner.

Community Support:

Because the use of local wood requires the cooperation of local businesses to help with the processing of the lumber, its use engages and supports the regional economy. As Glenn Andres puts it, "If the College's investment in its buildings can support hard-pressed local foresters, mills, and craftsmen, we are enriching the entire state with our activities..." Tom McGinn confirmed that an important consequence of the College's use of local mills, processors, and storage facilities is their valuable investment in the local economy. Although he did not give us any concrete monetary numbers, he did note that these businesses had stored, milled, and processed hundreds of thousands of board feet of local wood for the College.

Model of Sustainability:

Furthermore, Glenn Andres claims that using local wood serves two purposes: it "furthers our commitment to sustainability in our buildings" and permits the College to serve as a working example of sustainable building in action. In Glenn's opinion, "it is important that there be intentionality in everything we do in the College's building program…everything should serve a purpose for the college, not only in terms of direct function, but also as a lesson for our students and as an exemplar of our concerns.

Not only is the wood harvested in a sustainable manner, but by handling it locally we avoid energy-wasteful cross-country or global shipping." These comments reaffirm the notion that local wood use makes sustainability and ecological consciousness the major

goal. By keeping up the momentum on the College's local wood use initiative Middlebury can stay committed to its promise of environmental leadership.

Joe Ruocco noted that Middlebury was "the first institutional client that presented us with their own requirements for construction that embraced principles of sustainability as a major goal." This fact, as well as the reality that the College has, according to Glenn, "invented a process that is now having reverberations through other local institutions," should create an impetus to maximize the use of local wood and to continue to create programs that foster environmental sensitivity and support for the local community.

Challenges Associated with Using Local Wood:

Lack of a Model:

There is no sequential set of steps that provide a framework for how to incorporate the use of local wood into building designs nor is there one person championing the use of local wood within the College community. This lack of guidance makes it difficult to know when decisions regarding harvesting, processing, storage, and design must be made in order to keep projects on a relatively timely schedule and budget plan. As Steve Weber explains, "every project has been different." In each building process, the steps to acquire the wood have been varied, as well as the local businesses and planners that have been involved in each project. For example, Steve had a difficult time explaining the sequence of hands that local wood went through in the various projects because there have been so many different combinations of buyers and sellers in each instance. There were a number of off-site contractors including brokers, loggers, saw mills, and others that handled the wood in various stages and thus there is no

concrete pattern of movement from the forest to the final building because the parties involved and the sequence of events continually change.

Timing Issues:

The abovementioned variability also impacts timing as Professor Andres shares: "Sometimes it is difficult to obtain sufficient quantities of a particular wood at a particular time" requiring that "planning and scheduling must be more carefully pursued." Steve Weber similarly feels that a significant frustration in trying to plan ahead with wood use is the constant changes made to the original plan. Especially because so many different people, and thus opinions, are involved, it is difficult to know what kinds of wood and what amounts will be needed in the final count. Changes to structure and design are constantly being made throughout the entire building process.

According to Steve, the easiest way to guarantee supply is to have your own inventory because when a contractor is ready for the wood, it needs to be delivered. Since wood from the College lands can only be harvested at certain times of year, its provision depends on long-term planning and thus does not coincide well with on-the-spot demand. Mark Gleason echoed these concerns and added that using local wood does require planning ahead and the College has tried to work around this issue in order to use locally harvested sustainable wood in its building projects.

Lack of Storage:

One problem that continued to arise in our discussions was the lack of a storage space where local wood could be housed until it was needed. Because the College can only harvest its wood at certain times of the year when the ground in the forest is hard, it is often impossible to provide this local wood on demand. Thus, wood that is harvested and milled needs a dry place to be stored to make the process more efficient. With an

inventory of local wood that the College can draw from at any point, there will be fewer problems associated with last minute changes to the building design that might necessitate more or different wood.

As Steve, Mark, Tom and Jeff mentioned, one of the biggest challenges during the Atwater Dining Hall project was that when the building process took longer than originally planned, the flooring boards sat too long and absorbed moisture. Thus, before they could be used, the boards had to be dried out again, which cost time and money. This entire problem could have been avoided if the College had an appropriate place to store its wood. The problems associated with creating a storage space include no allocation of money or space to create such a massive infrastructure. Steve explains that this lack of storage often creates inefficient use of local wood. For example, during the Library project, the sawmill that was contracted to process the lumber had extra wood. When Steve asked Facilities if they wanted it, they said no because there was no money available, or process in place, to store it.

Certification Issues:

While local wood that is used in College building projects does not necessarily have to come from College lands, it is important that the wood be certified in order to confirm it was harvested and processed in an ecologically sensitive manner. When using wood from its own lands the College trusts that Steve Weber and his crew are harvesting trees in a sustainable manner. While these practices are employed, they would be much more authentic and defensible with an outside certification to validate this process. If the College is going to serve as an example of environmental sustainability to other institutions as well as our own local community, it is important that it obtain the FSC

certification in order to lend accountability and merit to the College's model.

Furthermore, according to Tom McGinn, in some recent projects there was more emphasis placed on having certified wood than having local wood. By certifying the College lands, there would be a definite source of wood that is both local and certified.

Limits to the College Role:

Another area of concern is the limits of the system that enable the College to really get involved in the local wood business, so to speak. Tom McGinn explained to us that with the Library project, which was very intent on using local wood from College lands, the process was complicated by the new role of the College, which acted as the broker. This process included: worrying about how many trees should be logged, how much waste there would be, what amount of character in the wood should be accepted, how the wood would be graded, and how the type of wood being logged would affect the durability of the final product. As Tom puts it, "doing the work of the lumber seller is not really the College's business." Furthermore, Tom does not want this entire process to become the College's business because it could put a lot of local people out of business, such as mill workers, truckers, and loggers. However Tom is very much in favor of providing and using local College wood in construction projects on campus and he hopes that the creation of a workable model of steps and participating parties (from logging to construction) will enable the use of local wood to become more seamlessly ingrained in the College's methods.

Limits to Design:

Vermont tree species such as maple, beech, and birch all produce light colored wood that has a tendency not to hold darker stains very effectively. Therefore, building

designs have to take this into account and recognize that there are some designs that are simply not possible if local wood resources are to be used. As Glenn Andres states, one of the main obstacles in the push to use local wood in campus buildings is "...the design community, who are not used to working with this kind of wood. This wood is what can be called "wood of character"; it has graining and sometimes knots or flaws. Designers today like to work with pristine aesthetics and totally predictable finishes (as one would get with a fake wood-grained plastic laminate or a controlled veneer). They have to rethink their aesthetic to accommodate the natural variations in wood color and texture." Glenn also notes, "...the colors of our local woods tend to be light, ruling out some of the clubbier darker finishes that designers might want to use. We find we have to be strong as clients in making it clear that we want sustainable design and are not afraid to express it, because their inclinations are to go in other directions."

RECOMMENDATIONS AND OPPORTUNITIES

In light of our conversations and research, we have come up with several recommendations for the College to improve its local wood use practices and methods.

1. We recommend that the College get FSC certification for its forests, so that any wood used from Middlebury land would be green certified. While the importance of FSC certification should not be overstated to eclipse the importance of using local wood, neither should it be understated. As Jared Diamond explains in his book *Collapse*, "The essence of FSC certification is that consumers can believe it, because it is not an unsubstantiated boast by the company itself but the result of an examination, against internationally accepted standards of best practice, by trained and experienced auditors who don't hesitate to say no or impose conditions" (Diamond, 474). FSC certification is internationally recognized as a

badge of responsible forestry. The FSC website asserts that the "[FSC] product label allows consumers worldwide to recognize products that support the growth of responsible forest management worldwide" (www.fsc.org). The certification is not particularly difficult to obtain, and in light of the many benefits it will provide, such as increased visibility for the College as an environmental leader and greater trust in its forestry practices, we think it is certainly a certification worth pursuing.

- 2. We recommend that the College establish a storage facility for wood harvested from its own forests. This would be an important step forward because it would allow the College to have a constant, accessible supply of lumber available for building projects at all times. Timing and availability have been problems in the College's use of local wood during the last several projects, and it seems that a storage facility would solve these issues by creating a stocked lumber supply for College projects. Such a facility could either be built by the College or rented from a local mill. It is likely that coming to an agreement with a local mill regarding space would be less costly and more feasible, and would also foster further community involvement, both socially and economically. Furthermore, Middlebury could jointly cooperate with another institution in which case wood that might ordinarily be wasted on any given project could satisfy the need of another project by another institution who could trust the sustainable, certified nature of the storage facility's inventory.
- 3. We recommend that the College create a unified model for utilizing local wood in its buildings to establish a clear outline of a step-by-step process that will not only facilitate easier construction projects for the College, but can also serve as a model for other institutions who are looking for the best possible way to implement and showcase local wood on campus. To do so, all parties involved in the harvesting and processing of logs to the final detail work of furniture and veneer must collaborate in order to design a framework that meets all parties'

needs and reflects a concerted effort to minimize timing issues, communications problems, and issues of inefficiency and waste in dealing with wood resources. The resulting model would clarify 1) when certain design decisions would have to be made, 2) when wood would need to be harvested, and 3) what types of trees produce material that can be graded in ways that minimize wood waste and increase the efficient use of materials. This model would also facilitate communication between different parties involved in construction and planning all the way through the building process. Through the information gathered for this report, it was apparent that lines of communication were difficult to maintain during extensive building projects because individuals often hold different priorities, as well as concepts of what is aesthetically pleasing.

4. We recommend that the College uses architects that are not worried about the "limits to design" that some believe using local wood imposes as an important step in creating effective collaboration. This could be one of the criteria for selecting architects for all College projects. Architects that are aware of the College's desire to create aesthetically pleasing designs around environmental frameworks will most likely see the prospect of such a design as both an inviting change as well as a useful structure around which they can work. In order for the local wood use initiative to move forward with momentum, there needs to be a concerted effort to blend opinions and priorities into a unified program.

Hopefully these recommendations will foster conversation and ideas about how the environmental initiatives that focus on local wood use at Middlebury College can be improved in the future. This way the College will not only be a leader in the realm of institutions who are building green and thinking about ways to support the local economy, but they will also be educating through collective action and efforts that will undoubtedly lead the way into a healthier, more sustainable future both for the College and the surrounding local communities.

ACKNOWLEDGEMENTS

This project could not have been completed without the valuable help and input of many individuals. We would like to thank Jeff Parsons for his effort in heading this exploration and supporting us along the way. To Nadine Barnicle and Diane Munroe, thank you ever so much for your unfailing guidance and encouragement.

We would also like to extend our appreciation to those who took the time to contribute their ideas and perceptions through interviews, without which this reporting and analysis could never have taken place. Many thanks Steve Weber, Joe Ruocco, Mark Gleason, Tom McGinn, and Glenn Andres.

APPENDIX - Sample Questions Used in Interviews

- 1. Please explain briefly what your role/involvement in the College's building project's and wood use is/has been.
- 2. Do you feel strongly that using local wood in College building projects is important? Why or why not? What have your personal contributions to the College's use of local or College wood been?
- 3. What direction do you feel the College's wood use is headed in? What direction would you like to see it headed in?
- 4. How do you feel the use of local wood impacts/influences aesthetics? Do you see this influence mainly in a positive or negative light? What aesthetic challenges does local wood present for you?
- 5. What economic, environmental, or social impact do you think using local wood can have? What impact do you think it has had in recent years? Where do you see opportunity for improvement?
- 6. What do you see as the main challenges or barriers are to using local wood in all College building projects?

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